

**S1 Table. The query for event log formulation.**

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1:  /* get required elements of event logs */
2:  SELECT    Visit.Visit_occurrence_id as CaseID,
3:             ET.[Table included in Scope]_occurrence_id as EventID,
4:             ET.[Table included in Scope]_concept_id as Activity,
5:             ET.[Table included in Scope]_datetime as Timestamp,
6:             ET.Provider_id as Originator,
7:             /* specify case attributes */
8:             [Visit.column_name],
9:             /* specify event attributes */
10:            [ET.column_name]
11: FROM      ( /* combine Visit_occurrence and Provider tables */
12:             SELECT  *
13:             FROM    ( /* combine Visit_occurrence and Person tables */
14:                     SELECT  *
15:                     FROM Visit_occurrence LEFT JOIN Person
16:                     ON Visit_occurrence.Person_id = Person.Person_id
17:                   ) AS Visit_temp LEFT JOIN Provider
18:                   ON Visit_temp.Provider_id = Provider.Provider_id
19:             ) AS Visit,
20:            ( /* combine [Table included in Scope] and Provider tables */
21:             SELECT  *
22:             FROM [Table included in Scope] LEFT JOIN Provider
23:             ON [Table included in Scope].Provider_id = Provider.Provider_id
24:           ) AS ET
25: WHERE      /* connect Visit table and ET table */
26:            Visit.Visit_occurrence_id = ET.Visit_occurrence_id AND
27:            /* filter with a specific process type */
28:            Visit.Visit_type_concept_id = [Process type] AND
29:            /* filter with a specific period */
30:            Visit.Visit_start_date >= [Period.lowerbound] AND
31:            Visit.Visit_end_date <= [Period.upperbound]

```

The lines 11 through 24 describe ways in which tables are selected and joined to constitute event logs. In this process, the table that represents case (i.e., *visit*) is constructed by combining *visit\_occurrence*, *person*, and *provider* tables as described in lines 11 through 19. For the tables associated with events instead of cases, the *provider* table and the ones mentioned in the scope part should be considered (lines 20 through 24). This process can be performed in a repetitive manner with the UNION ALL statement when multiple tables are defined for scope. Also, the user-defined elements in the process type and period parts are specified in lines 27 through 31. The feature part can be inserted under the WHERE statement after line 31.